

Work Order ID 67178

Wednesday, March 09, 2011 12:58:57 PM

Page 1

Item ID: D350-636-015

Accept

Revision ID:

Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 3/9/2011 Start Qty: 1.00

Required Date: 3/16/2011 Req'd Qty: 1.00

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D4168

A

IIN-D350-636

H

100

0.00



DOCUMENT CONTROL

DC

0.00

Document Control

Memo

Photocopy blue file and type labels per PPP D350-636-015 CHG 001

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Setup Start



Revision ID:

Stop



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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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110

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1- Pick D2600-3 Bent

2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg D4168

3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500", deburr. *section H-H*

4- Locate DT8330 off of blade fitting bolt holes and drill pilot holes for blade fitting *section H-H*

5- Drill fwd step holes using DT9616. Ensure proper positioning. All holes as per dwg D4168. *Detail A*

6- Drill pilot holes as per Dwg D4168 sheet 4 (D4168-1 details). Drill using drill Jig DT8150 & DT8863A for first side only DT8863B for second side (detail B)

7- Clecko DT8863B on second side of tube and drill pilot holes for detail B.
SECOND SIDE

8- Drill most FWD wearplate hole using DT9678 locating off of 66.54" hole.

9- Open up holes for Detail B to 0.375" (4 holes per side) and blade fitting location holes to 0.500" (total of 4 holes per side) as per dwg D4168. Open up holes for ground handling and detail C to 0.500" (8 holes per side)

10- Open up holes of Detail A to 0.297" (total of 2 holes per side) and .210" (total of 1 hole per side) *open holes of detail D section H-H to 0.500 as per dwg D4168*

1 BB 11/03/16

1 BB 11/03/28

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QtyReject
QtyReject
NumberInsp.
Stamp

11-Weld D2744 Cap as per Dwg D4168 and QSI 004. Fill grooves in bend left
from bending as per QSI 004

A/R Aluminum Rod batch: ☐ M116577

12-Grind welds flush as per Dwg D4168

120

QC10- Inspect visual per QSI004- ground welds

0.00



QC

Memo

0.00

Quality Control

130

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

S 11/03/30

S 11/03/30

(H)

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

Chemical Conversion Coat per QSI005 4.1

0.00



HandFinish

Memo

0.00

Hand Finishing

1 0 11/03/11

150

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 BR 11-3-21

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Open up holes of Detail C and ground handling to 0.625" (total of 8 holes per side)
as per dwg D4168.

2-Open up holes of Detail B to 0.750" (total of 4 holes per side)
as per dwg D4168.

3- Open float hole to 0.500" (4 per side)

Open wearplate holes to size as per dwg (4 holes per sides)
4-Chamfer holes of Detail B, C, ground handling and float holes per dwg D4168
(welding instructions on sheet 8)

5-Deburr and blow out all chips from inside of tube

6- Prepare tube for welding, remove alodine as required.

7-Bond web D2739 in place as per QSI 015
A/R ☐☐☐ Sikaflex-291 batch: 116118 ☐☐☐
exp. date: 12/01/15

8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D4168 and D4170-1
& QSI004
(welding instructions on sheet 8)

A/R ☐☐☐ Aluminum Rod batch: 1116577

9- At section AJ-AJ drill out x-bolt spacer to 0.404"

*section AL-AL**section AJ-AJ**section CG-C6
section AL-AL section AJ-AJ**BEN 11/04/04**BEN 11/04/05*

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Run Start
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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10-Grind welds flush as per Dwg D4168

11-Spot face ground handling holes section (total of 4 places per side) as per
dwg D4168 *section AL-AL*

12- C'bore section CG-CG

13- Deburr holes

170



QC

Quality Control

QC10- Inspect visual per QSI004- ground welds

0.00

Memo

0.00

180



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

*3 BE 11/04/05**S 11/04/06**S 11/04/06**(K)*

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Start Date: 3/9/2011 Start Qty: 1.00  Cust Item ID:
Required Date: 3/16/2011 Req'd Qty: 1.00  Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start 
QC: Date: SPC (Y/N): Date: Stop 

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190  HandFinish	Pressure Wash per QSI005 4.3	0.00				1	0	11	11/04/07
Hand Finishing	Memo Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.	0.00							
200  Powdercoat	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00				1	12	11-4-7.	
Powder Coating	Memo START TIME: 3:45 OVEN TEMPERATURE: 320° FINISH TIME: 7:15	0.00							
210  QC	QC3- Inspect Part Finish	0.00							
Quality Control	Memo Inspect for foreign object per QSI 024	0.00							

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Run Start
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220		0.00							
	HandFinishing					<u>ml</u>	<u>11</u>	<u>04</u>	<u>08</u> ①
HandFinish	Memo	0.00							
Hand Finishing	1- Install inserts as per Dwg D4168								
230		0.00							
	HandFinishing					<u>ml</u>	<u>11</u>	<u>04</u>	<u>08</u> ①
HandFinish	Memo	0.00							
Hand Finishing	1-Inspect for Foreign Objects								
	2-Spray inside of tube with "LPS-3" batch: <u>N/A</u>								
	3-Install blade fitting D3488-041, wearshoes and ground handling hardware as per dwg D4168 SIKA FLEX 241 BATCH: <u>116918</u> EXP DATE: <u>12/01</u>								
	4-assemble o-ring to plug as per dwg D3492 and apply o-ring lube A/R 55-o-ring lube batch: <u>114189</u>								
	5-Coat all exposed fasteners with "LPS Procyon" batch: <u>114596</u>								

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Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

*****ensure antiseize is on AN8C21A bolts*****

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPPD350-636-015 Location: _____ PPP rev: _____								
280		0.00							
	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

CK 11/04/08

H 11-04-8

(1)

W/O:		WORK ORDER CHANGES						
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Picklist Print

Wednesday, March 09, 2011 12:59:03 PM

Page 1

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Start Date: 3/9/2011


Required Date: 3/16/2011

Start Qty: 1.00


Required Qty: 1.00

Comments: IPP rev:A 10.09.28 new issue DD verf:EC


Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

AN3C34A  BOLT		Purchased	No			230	Each	70.0000	1	1		11.04.08	
---	--	-----------	----	--	--	-----	------	---------	---	---	--	----------	--

Location	Loc Qty	Loc Code
ST353	70	
116003	20	
116075	50	

AN3C36A  BOLT		Purchased	No			230	Each	40.0000	4	4		11.04.08	
---	--	-----------	----	--	--	-----	------	---------	---	---	--	----------	--

Location	Loc Qty	Loc Code
FG	10	
116590	10	
ST353	30	
109771	6	
116381	2	
116590	22	

AN3C37A  BOLT		Purchased	No			230	Each	81.0000	1	1		11.04.08	
---	--	-----------	----	--	--	-----	------	---------	---	---	--	----------	--

Location	Loc Qty	Loc Code
ST353	1	
114801	1	
ST354	80	
116874	30	
117010	50	

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Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

AN3C42A

Purchased No

230 Each

61.0000

1

1

BOLT

Location

Loc Qty

Loc Code

ST354

61

106176

61

D3873-1

Manufactured No

230 Each

180.0000

7

7

Bushing

Location

Loc Qty

Loc Code

ST088

180

57615

3

62197

8

64567

69

64760

100

D4154-041

Manufactured No

230 Each

2.0000

1

1

Wearplate Assembly

B# 66228

Location

Loc Qty

Loc Code

FG

2

65092

2

D4170-1

Manufactured No

230 Each

38.0000

4

4

Bushing

Location

Loc Qty

Loc Code

LG

38

62251

4

65912

23

66158

11

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Shop Packet Print

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Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

D4171-1 Manufactured No

230 Each

18.0000

1

1



Bushing



ml 11.04.08

Location

Loc Qty

Loc Code

ST135

18

65646

18

MS21043-3

Purchased No

230 Each

1,156.000

5

5



Nut



ml 11.04.08

Location

Loc Qty

Loc Code

FG

76

103691

76

ST301

1080

112314

1080

NAS1149C0363R

Purchased No

230 Each

5,076.000

9

9



Washer



ml 11.04.08

Location

Loc Qty

Loc Code

ST297

5076

113524

33

113889

139

114742

4904

NAS1515H3L

Purchased No

230 Each

300.0000

4

4



WASHER



ml 11.04.08

Location

Loc Qty

Loc Code

FG

40

102472

40

ST277

260

111819

34

113362

226

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Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

AN960JD816

Purchased No

250

Each

85.0000

2

2



1/2" washer, Alum

Location

Loc Qty

Loc Code

ST348

85

106043

85

D2744

Manufactured No

110

Each

55.0000

1

1



Cap

Location

Loc Qty

Loc Code

LG

29

65086

29

ST

26

62715

26

D2600-3-BENT

Manufactured No

110

Each

6.0000

1

1



Extrusion Bent

Location

Loc Qty

Loc Code

LG

6

61634

2

62764

1

64434

3

66875

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Page 4

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 5

Work Order ID: 67178

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

D2743

Manufactured No

160

Each

122.0000

8

8



Crossbolt Spacer

Location

Loc Qty

Loc Code

LG

122

50281

10

57953

2

59111

10

61844

16

64003

84

D2739

Manufactured No

160

Each

4.0000

1

1



350 I Beam

Location

Loc Qty

Loc Code

LG

4

64448

4

D3490-3

Manufactured No

160

Each

35.0000

4

4



Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG

35

60294

1

63556

24

64006

10

D3490-1

Manufactured No

160

Each

61.0000

4

4



Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG

61

59424

3

62450

48

64005

10

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Page 5

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

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Page 6

Work Order ID: 67178

Parent Item: D350-636-015

Parent Item Name: Skidtype STD w/ Training Wearplates, LH

Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

ALS4-1032-225

Purchased No

230 Each

3,809.000

4

4



Insert



ml 11-04-08

Location

Loc Qty

Loc Code

PK011

3809

110768

3809

D3492-041

Manufactured No

230 Each

77.0000

8

8



Plug Assembly



ml 11-04-08

Location

Loc Qty

Loc Code

FP013

77

59114

1

62210

3

63994

29

65068

44

AN8C35A

Purchased No

230 Each

59.0000

1

1



BOLT



ml 11-04-08

Location

Loc Qty

Loc Code

ST345

25

116874

25

ST346

34

114442

5

115188

5

115960

24

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Page 6

W/O:		WORK ORDER CHANGES						
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NOTE: Date & initial all entries

Picklist Print

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Page 7

Work Order ID: 67178

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

D3488-041

Manufactured No

230 Each

16.0000

1

1



Blade Fitting Assembly, LH

Location

Loc Qty

Loc Code

FG008

10

62002

10

FP18

6

61689

6

AN6C44A

Purchased No

230 Each

89.0000

4

4



BOLT

Location

Loc Qty

Loc Code

FG

2

103964

2

ST344

87

111649

2

114653

1

115936

34

116874

50

MS21083C8

Purchased No

230 Each

57.0000

1

1



NUT

Location

Loc Qty

Loc Code

ST303

57

113845

5

114934

3

115594

4

115884

25

117010

20

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Page 7

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 8

Work Order ID: 67178

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

D3631-1 Manufactured No

230 Each

228.0000 8 8



Washer

Location

Loc Qty

Loc Code

ST072

228

63647

128

66959

100

AN960C10L NAS1149C0332 Purchased No

230 Each

61.0000 4 4



washer

B#117291

Location

Loc Qty

Loc Code

ST297

61

107534

59

108246

2

D2745 Manufactured No

230 Each

105.0000 8 8



Bushing

Location

Loc Qty

Loc Code

ST021

105

52311

5

59112

4

63315

96

AN960C816L Purchased No

230 Each

0.0000 1 1



WASHER

NAS1149C0332

B#114915

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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NOTE: Date & initial all entries

Picklist Print

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Page 9

Work Order ID: 67178

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

D3492-043

Manufactured No

230 Each

125.0000

8

8



Plug Assembly

Location

Loc Qty

Loc Code

FP

2

54682

2

FP013

123

59117

1

59190

4

63996

2

65070

16

66150

20

66931

80

AN3C6A

Purchased No

230 Each

327.0000

4

4



BOLT

Location

Loc Qty

Loc Code

ST351

327

111982

102

116419

75

116549

50

116704

100

MS21043-6

Purchased No

230 Each

538.0000

4

4



NUT

Location

Loc Qty

Loc Code

ST301

538

112314

538

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Page 9

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Wednesday, March 09, 2011 12:59:06 PM

Page 10

Work Order ID: 67178

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

D3493-1

Washer

Manufactured No

250 Each

28.0000

2

2

ml 11.04.08

Location

Loc Qty

Loc Code

ST062

28

62677

28

Purchased No

250 Each

57.0000

2

2

ml 11.04.08

MS21083C8

NUT

Location

Loc Qty

Loc Code

ST303

57

113845

5

114934

3

115594

4

115884

25

117010

20

Purchased No

250 Each

67.0000

2

2

ml 11.04.08

AN8C21A

BOLT

Location

Loc Qty

Loc Code

ST345

67

113558

1

114653

2

115723

4

116381

60

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 11

Work Order ID: 67178



Parent Item: D350-636-015



Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 3/9/2011

Required Date: 3/16/2011

Start Qty: 1.00

Required Qty: 1.00

D2741

Manufactured No

250

Each

77.0000

1

1



Blade, 350 Skidtube



Location

Loc Qty

Loc Code

ST466

77

60210

4

61341

33

63589

40

1

~~11/04/07~~

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D4168-041	350 SKIDTUBE ASSEMBLY, LH
	X			D4168-042	350 SKIDTUBE ASSEMBLY, RH
		X		D4168-043	350 SKIDTUBE ASSEMBLY, LH
			X	D4168-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1		1		D3488-041	BLADE FITTING, LH
	1		1	D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
8	8	8	8	D3631-1	WASHER
7	7	7	7	D3873-1	BUSHING
1	1	1	1	D4154-041	WEARPLATE ASSEMBLY
1				D4168-1	SKIDTUBE WELDMENT, LH
	1			D4168-2	SKIDTUBE WELDMENT, RH
		1		D4168-3	SKIDTUBE WELDMENT, LH
			1	D4168-4	SKIDTUBE WELDMENT, RH
4	4	4	4	D4170-1	SPACER
1	1	1	1	D4171-1	BUSHING
4	4	4	4	ALS4-1032-225	INSERT
4	4	4	4	AN3C6A	BOLT
1	1	1	1	AN3C34A	BOLT
4	4	4	4	AN3C36A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
9	9	9	9	AN960C10	WASHER (OR NAS1149C0363R)
4	4	4	4	AN960C10L	WASHER (OR NAS1149C0332R)
1	1	1	1	AN960C816L	WASHER (OR NAS1149C0832R)
5	5	5	5	MS21043-3	NUT
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

GENERAL NOTES:

- MATERIAL: MAKE D4168-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- FINISH:
CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: D4168-041/-042/-043/-044 = 32.3 LBS
- WELD PER DART QSI 004
- FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
MINIMUM YIELD TENSILE STRENGTH = 35 KSI
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF
POWDER COATING WITH MEK DEGREASER.
- SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 67178

11-03-9

RELEASED
2010-09-15

A NEW ISSUE		SC	10.08.09
REV.	DESCRIPTION	BY	DATE
DESIGN	SC	DART AEROSPACE USA, INC.	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D4168	SHEET 1 OF 11
APPROVED		TITLE	SCALE
DE APPR.		350 SKIDTUBE ASSEMBLY	NTS
DATE	10.08.09	COPYRIGHT © 2010 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE REPRODUCED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

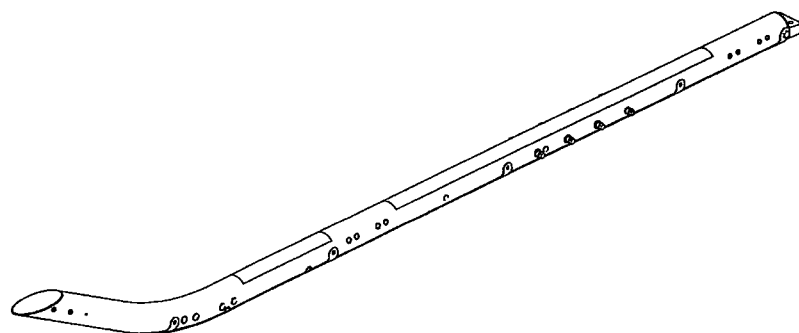
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

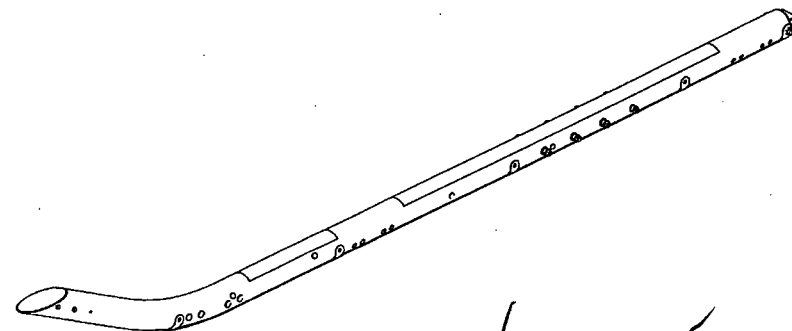
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D4168-041 350 SKIDTUBE ASSEMBLY, LH



D4168-042 350 SKIDTUBE ASSEMBLY, RH

u10 62178

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2010-09-15
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DRAWN	SC		
CHECKED	<i>[Signature]</i>	DRAWING NO. D4168	REV. A
MFG. APPR.	<i>[Signature]</i>	SHEET 2 OF 11	
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	350 SKIDTUBE ASSEMBLY	NTS
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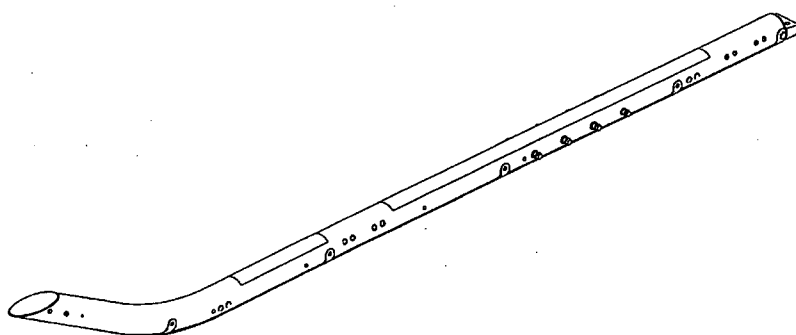
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

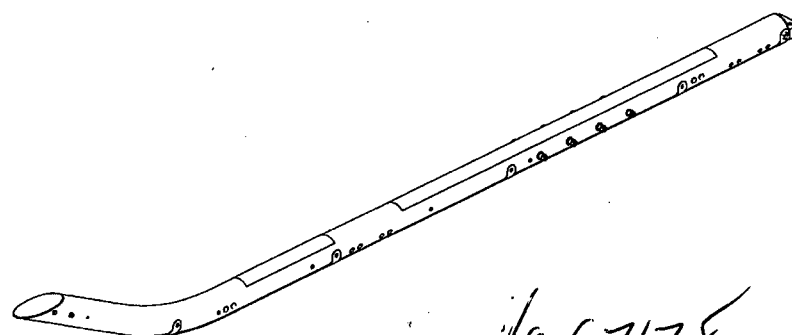
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D4168-043 350 SKIDTUBE ASSEMBLY, LH



D4168-044 350 SKIDTUBE ASSEMBLY, RH

W/O 67178

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2010-09-15

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MFG. APPR.	<i>[Signature]</i>	SHEET 3 OF 11	
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	350 SKIDTUBE ASSEMBLY	NTS
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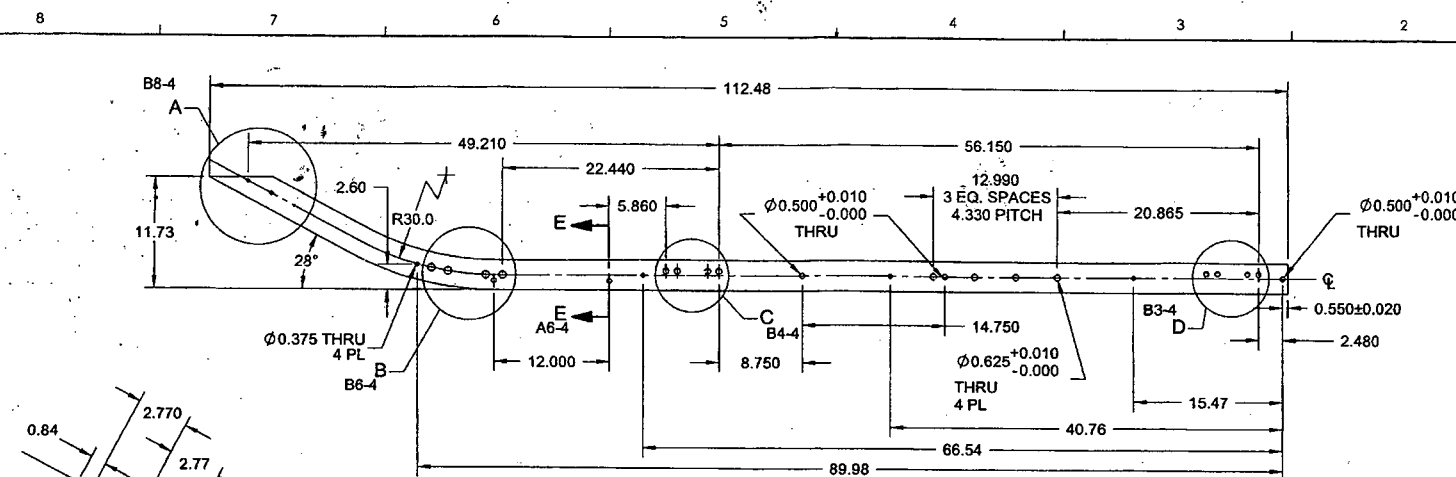
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

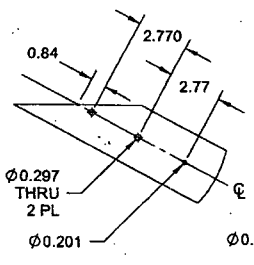
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

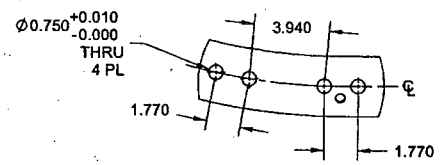
NOTE: Date & initial all entries



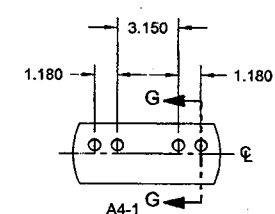
D4168-1 LH SKIDTUBE



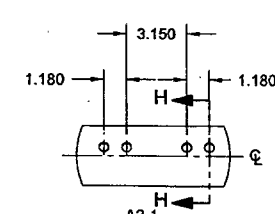
DETAIL A
SCALE 2X



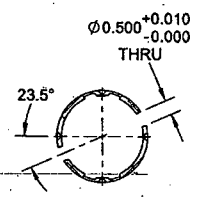
DETAIL B
SCALE 2X



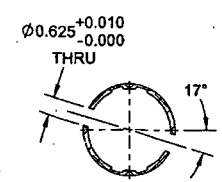
DETAIL C
SCALE 2X



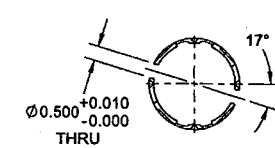
DETAIL D
SCALE 2X



SECTION E-E
SCALE 3X, 2 PL



SECTION G-G
SCALE 3X, 4 PL



SECTION H-H
SCALE 3X, 4 PL

u/o 41178

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2010-09-15

DESIGN	SC	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
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CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D4168	SHEET 4 OF 11
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	350 SKIDTUBE ASSEMBLY	NTS
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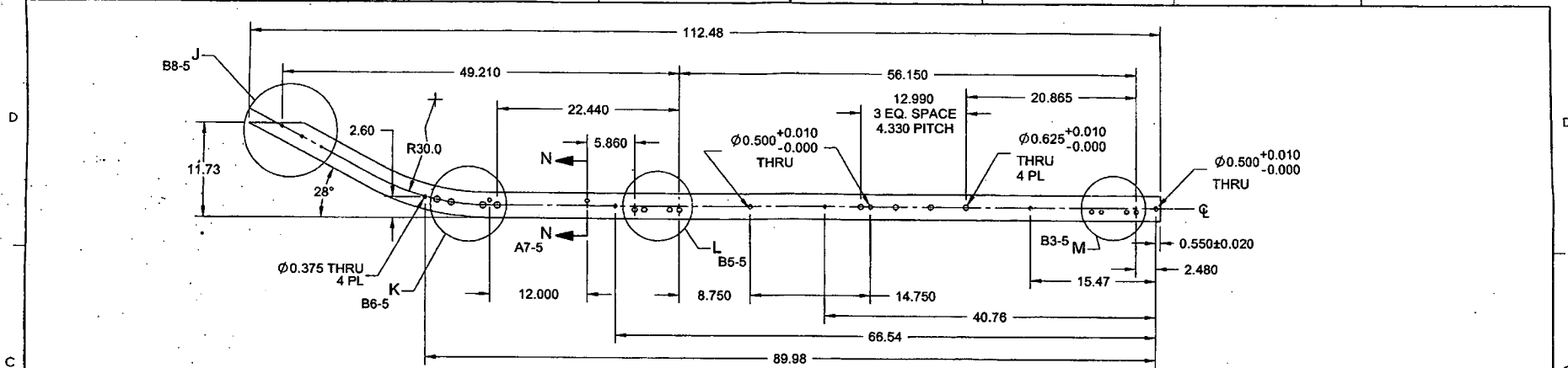
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

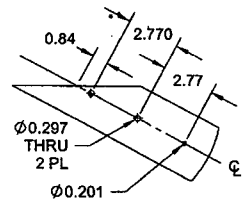
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

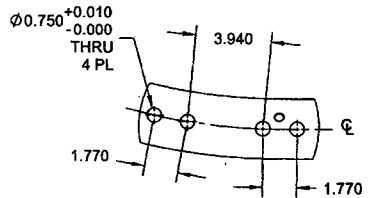
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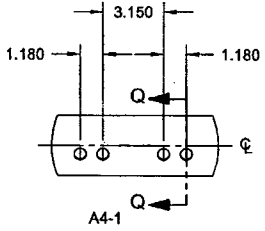
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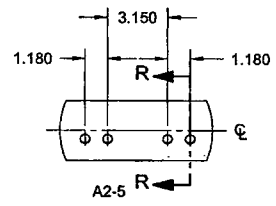
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SCALE 2X



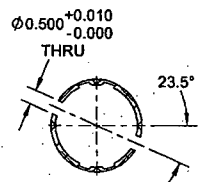
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SCALE 2X



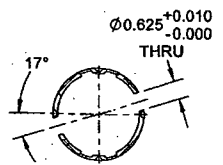
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SCALE 2X



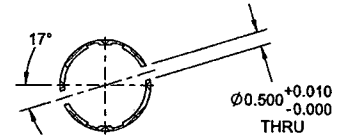
DETAIL M
SCALE 2X



SECTION N-N
SCALE 3X, 2 PL



SECTION Q-Q
SCALE 3X, 4 PL



SECTION R-R
SCALE 3X, 4 PL

W061178

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2010-09-15

DESIGN	SC	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
DRAWN	SC		
CHECKED		DRAWING NO. D4168	REV. A
MFG. APPR.			SHEET 5 OF 11
APPROVED		TITLE	SCALE
DE APPR.		350 SKIDTUBE ASSEMBLY	NTS
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8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

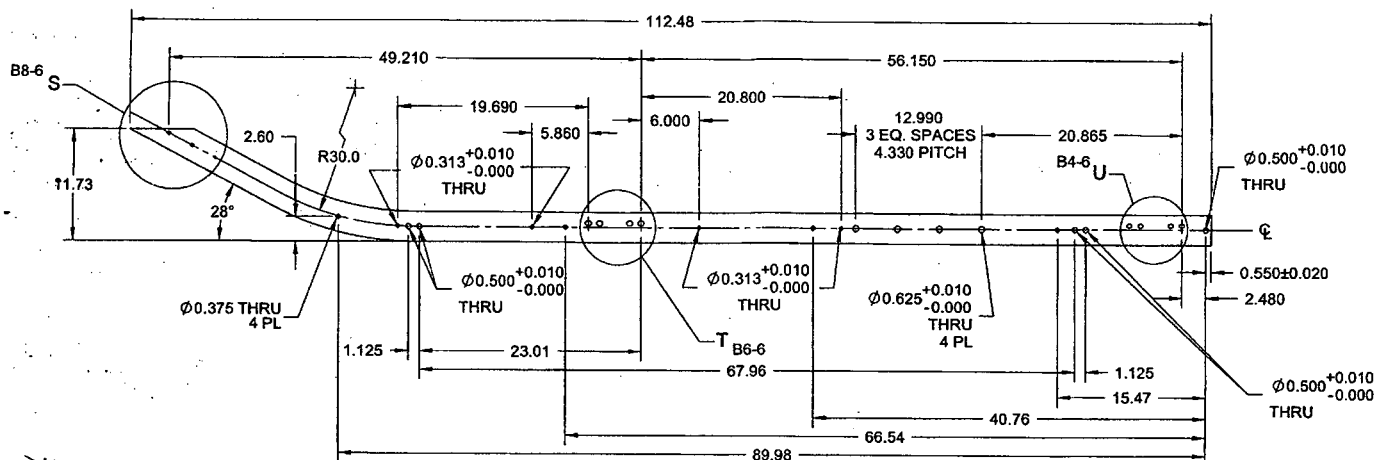
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

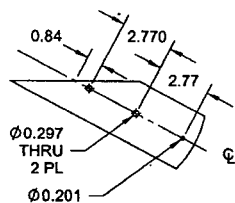
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

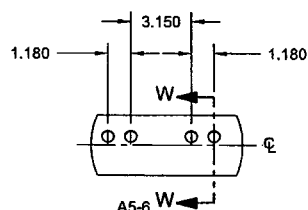
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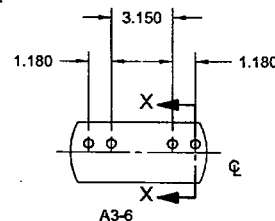
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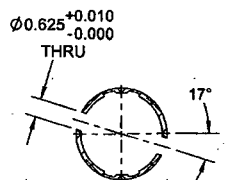
DETAIL S
SCALE 2X



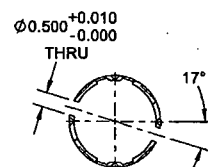
DETAIL T
SCALE 2X



DETAIL U
SCALE 2X



SECTION W-W
SCALE 3X, 4 PL



SECTION X-X
SCALE 3X, 4 PL

u1067178

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2010-09-15
AM

DESIGN	SC	DART AEROSPACE USA, INC.	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D4168	SHEET 6 OF 11
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8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

D

D

C

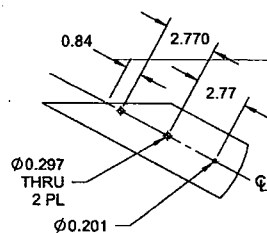
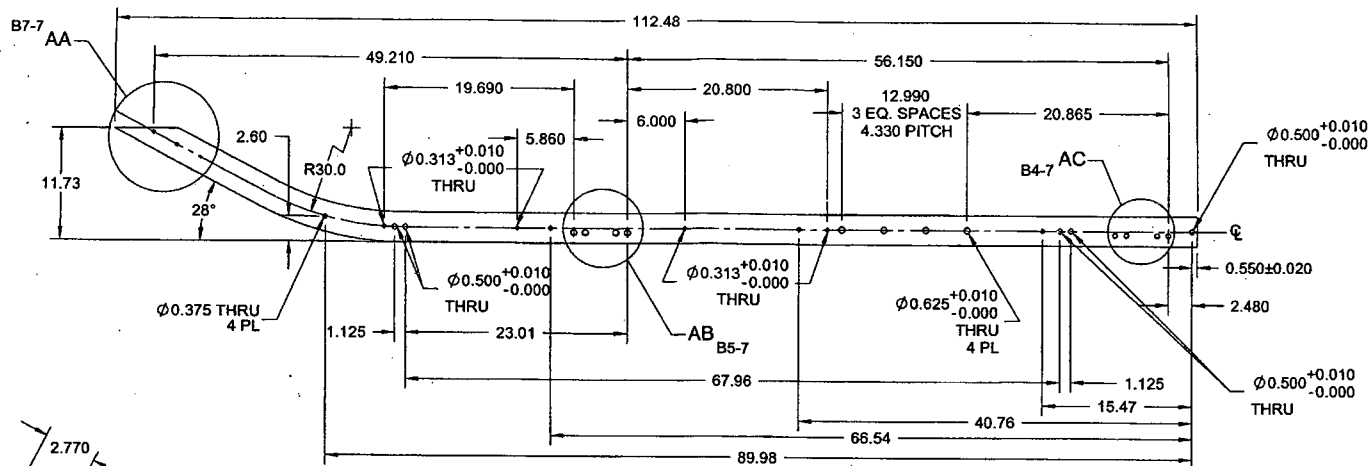
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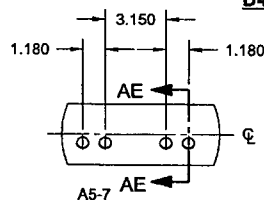
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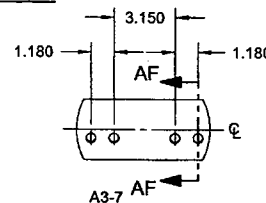
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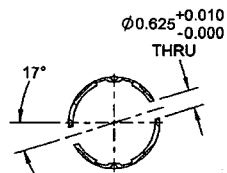
DETAIL AA
SCALE 2X



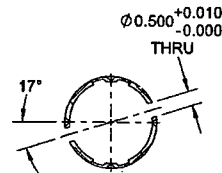
DETAIL AB
SCALE 2X



DETAIL AC
SCALE 2X



SECTION AE-AE
SCALE 3X, 4 PL



SECTION AF-AF
SCALE 3X, 4 PL

u1062178

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2010-09-15

DESIGN	SC	DART AEROSPACE USA, INC.	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D4168	SHEET 7 OF 11
APPROVED		TITLE	SCALE
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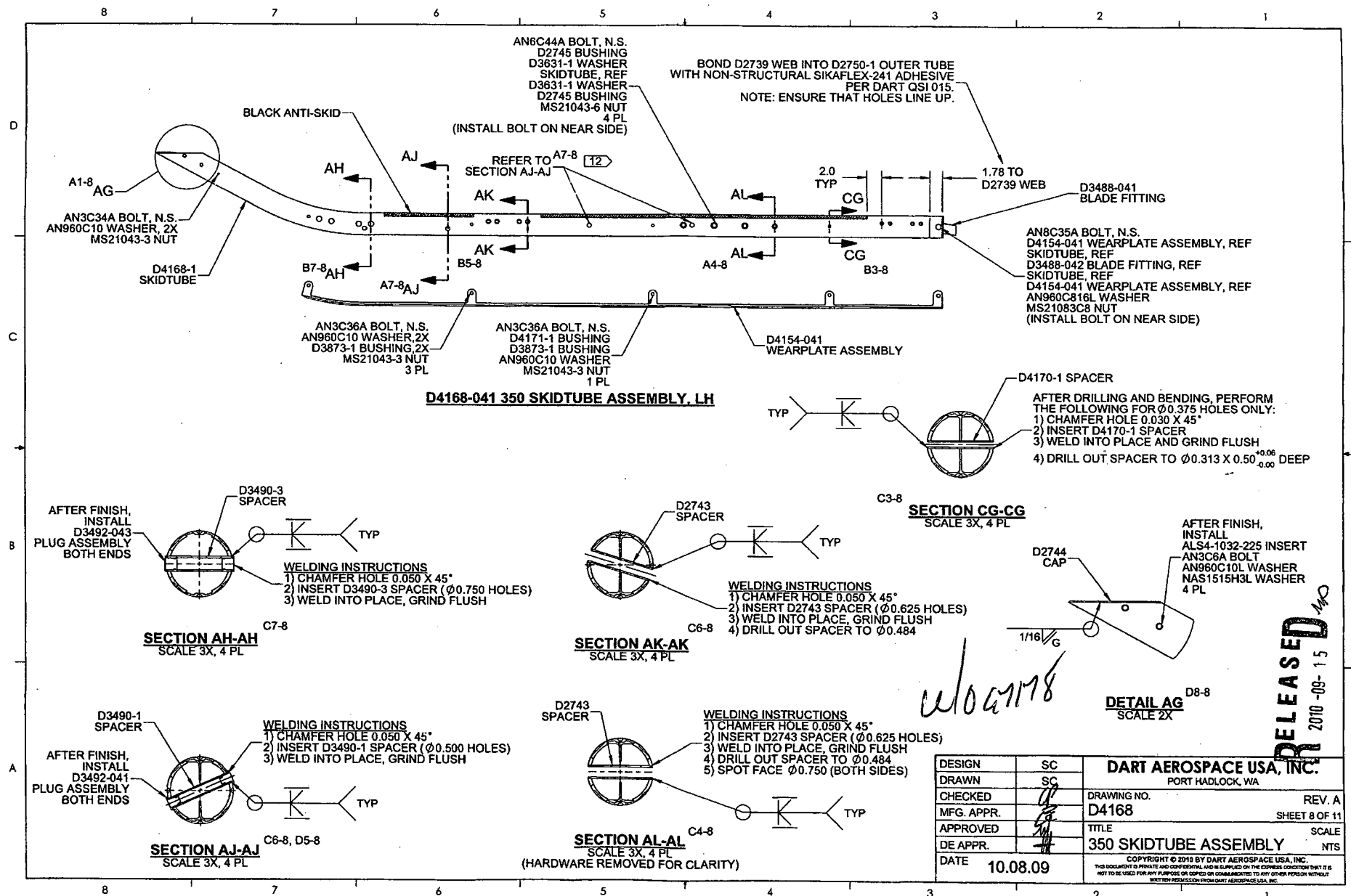
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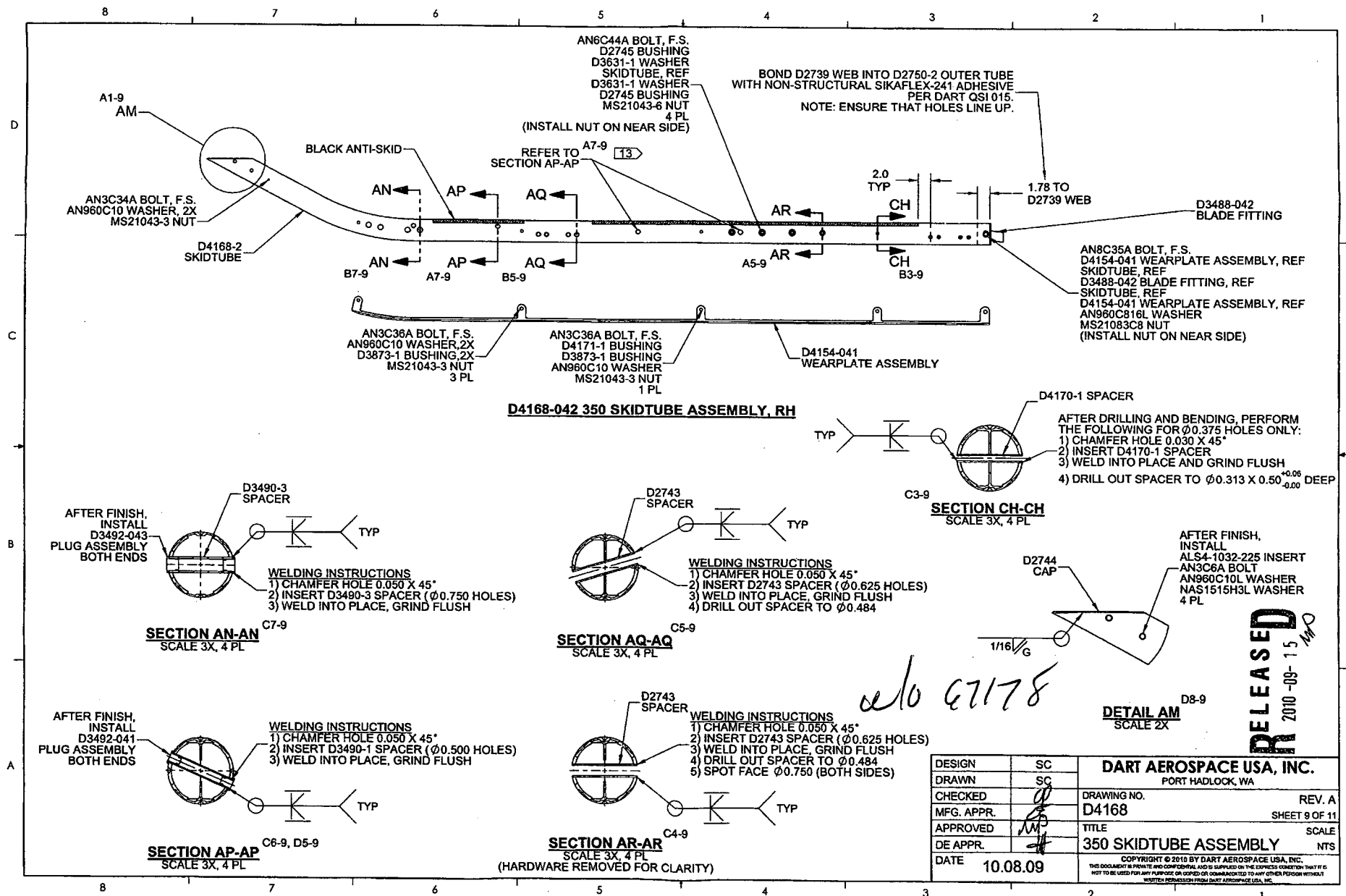
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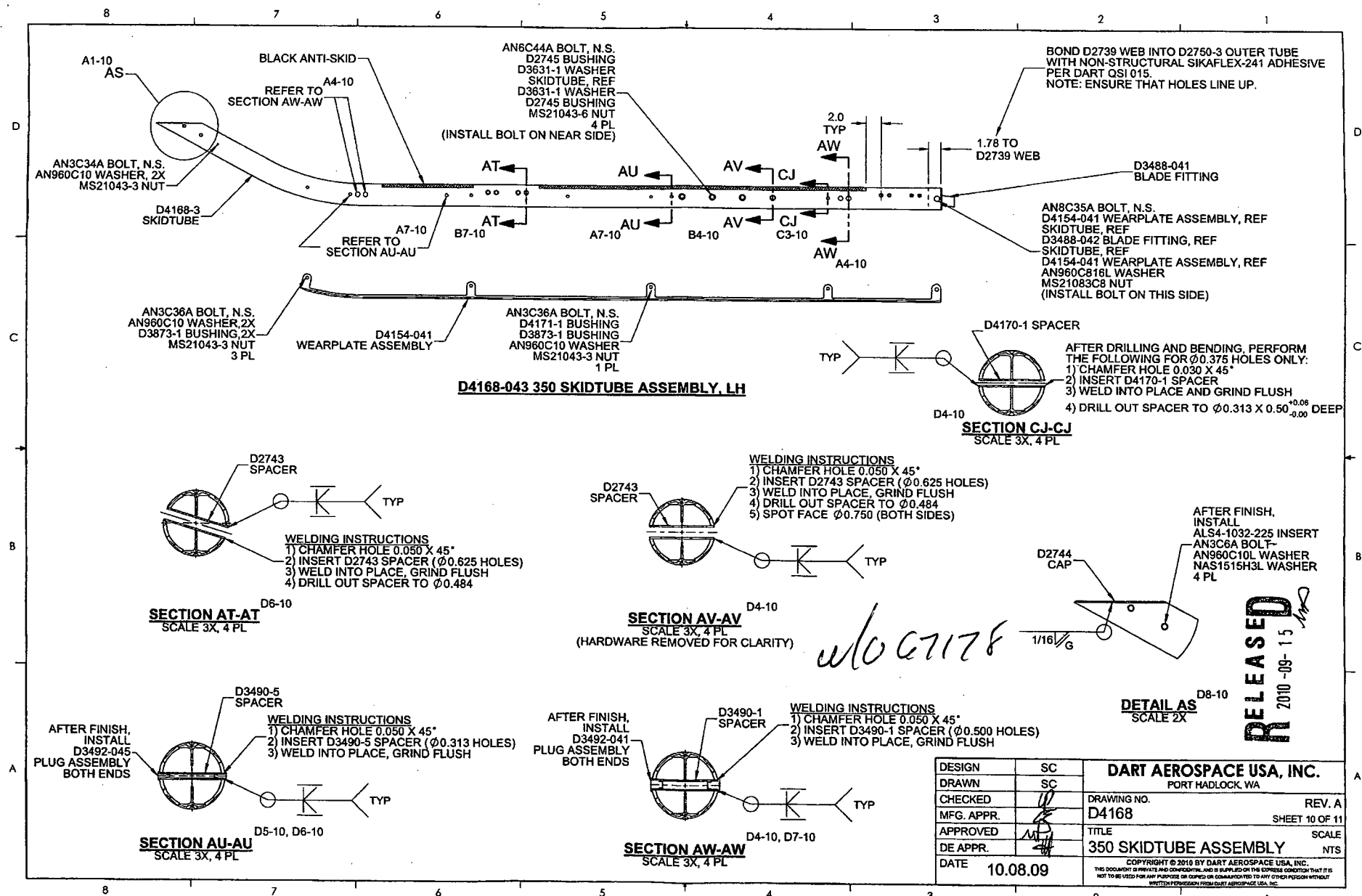
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

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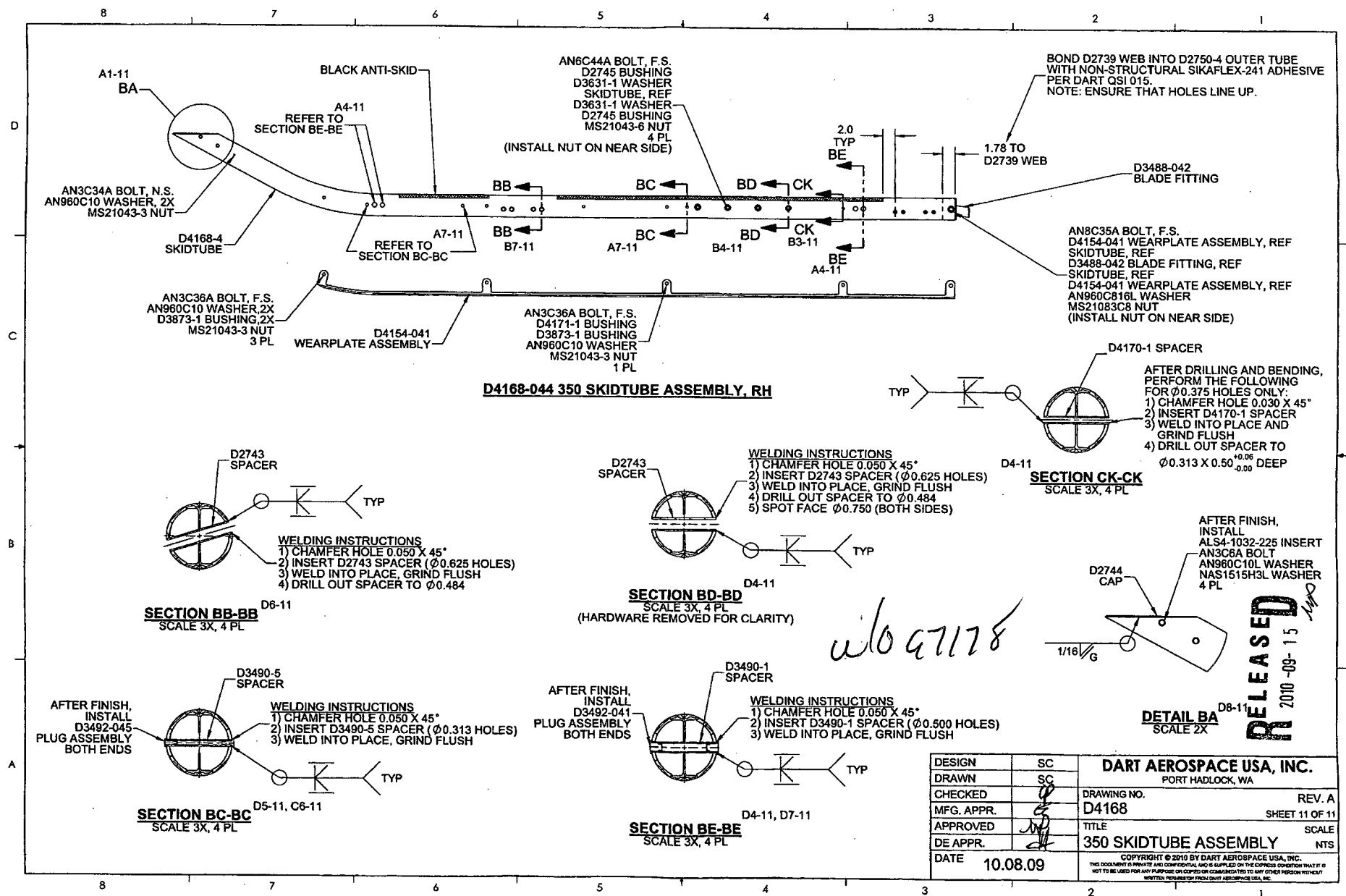
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 248

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 67178
Part number: 350 636 015
Description: 350
Welding Process: Tig[☒] Mig[]
Base material: Aluminum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual:

pass[☒] fail[]

Penetration:

pass[☒] fail[]

UNACCEPTABLE

Cracks:

pass[☒] fail[]

Undercut:

pass[☒] fail[]

Pin holes:

pass[☒] fail[]

Overlap (cold lap)

pass[☒] fail[]

Porosity (surface):

pass[☒] fail[]

Coloration:

pass[☒] fail[]

Qualifier Pat. Lewis Date of Test Coupon 11.04.05
Welder Barclay Elliott Date of Test Coupon 11.04.05

The above named individual is qualified in accordance with AWS D17.1.2001 to weld